

Solar activity ranged from low to high levels with the majority of activity occurring from Region 2222 (S19, L=085, class/area Ekc/770 on 04 December). Region 2222 produced a total of 54 C-flares and 5 M-flares since it began its transit on the visible disk on 26 November. The largest flares of the period were an M1/1n at 01/0641 UTC, an M1/1n at 04/0810 UTC, a long duration M6 at 04/1825 UTC, an M1 at 04/1941 UTC, and another M1 at 05/1225 UTC. Region 2222 continued to be in a growth phase through 04 December, when it began to decay. By the end of the period, the region was a large Hkx/alpha group with approximately 640 millionths of area. No Earth-directed coronal mass ejections were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was normal levels on 02 December, moderate levels on 01 and 03-06 December, and reached high levels on 07 December. Maximum flux values of 2,030 pfu were observed at 07/1755 UTC.

Geomagnetic field activity ranged from quiet to minor storm levels. Solar wind parameters measured at the ACE satellite were indicative of two negative polarity coronal hole high speed streams (CH HSS). The first began just after midday on 01 December. Solar wind speeds gradually increased from approximately 430 km/s to near 630 km/s while total field reached a peak of around 14 nT. Solar wind speed declined by 03 December, but remained enhanced around 400 km/s to 550 km/s through the majority of the period. By early on 06 December, total field increased to a maximum of 25 nT along with an increase in density as a co-rotating interaction region (CIR) began to influence the geomagnetic field. Solar wind speed showed an increase late on 06 December and through 07 December to a maximum around 800 km/s as a southern polar coronal hole extension became geoeffective. The geomagnetic field responded with quiet to unsettled levels on 02-03 and 05 December, quiet to active levels on 01, 04, and 06 December, and unsettled to minor storm (G1-Minor) on 07 December.

Space Weather Outlook

08 December - 03 January 2015

Solar activity is expected to be at low levels with a chance for M-class flaring (R1-R2, Minor to Moderate) for the forecast period as region 2222 continues to rotate off the visible disk as well as the return of old Region 2209 (S13, L=251) on 08 December.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels from 08-22 and again on 03 January due to CH HSS influence.

Geomagnetic field activity is expected to be at unsettled to minor storm (G1-Minor) on 08 December and 03 January due to CIR/CH HSS activity. Unsettled, with possible active, levels



are expected on 09, 12-15, 17-20, 28-29 December due to recurrent CH HSS effects. Quiet to unsettled with possible isolated active periods are expected from 31 December through 02 January due to possible recurrent extended periods of negative Bz as part of a variable current sheet.



Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
01 December	168	160	1380	B6.7	3	1	0	6	1	0	0	0
02 December	168	146	1290	C1.0	10	0	0	11	0	0	0	0
03 December	154	128	1090	B7.6	7	0	0	15	0	0	0	0
04 December	158	137	1090	B7.1	4	3	0	8	1	1	0	0
05 December	137	97	820	B5.2	8	1	0	9	1	0	0	0
06 December	129	73	880	B6.9	8	0	0	11	1	0	0	0
07 December	132	58	860	B5.6	6	0	0	5	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	01 December	1.2e+06	1.5e+04	2.5e+03		4.1e+06
02 December	7.6e+05	1.2e+04	2.3e+03		2.8e+06	
03 December	6.2e+05	1.3e+04	2.5e+03		6.3e+06	
04 December	8.5e+05	1.5e+04	2.4e+03		2.4e+06	
05 December	4.0e+05	1.2e+04	2.4e+03		5.6e+06	
06 December	7.0e+05	1.1e+04	2.4e+03		6.0e+06	
07 December	1.7e+06	1.1e+04	2.5e+03		3.6e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	01 December	9	1-2-2-1-2-2-2-4	8	1-2-2-1-3-1-2-3	10
02 December	9	3-2-2-2-3-2-2-2	17	3-2-3-3-5-3-3-1	12	3-3-3-2-3-2-3-2
03 December	7	3-2-1-2-1-2-2-2	5	2-1-1-0-1-2-2-2	8	3-2-1-2-2-2-3-2
04 December	8	2-1-1-1-2-2-2-4	15	1-2-2-3-4-5-1-2	11	3-2-1-1-2-3-2-4
05 December	8	2-3-2-2-2-1-2-2	26	2-4-4-6-5-3-1-1	11	2-3-2-3-3-2-2-2
06 December	10	1-2-2-2-2-2-3-4	13	1-1-4-4-2-2-3-3	13	2-2-3-2-2-2-4-4
07 December	19	4-2-2-3-4-4-4-3	53	4-3-3-6-7-6-5-3	28	5-3-3-3-5-4-4-4

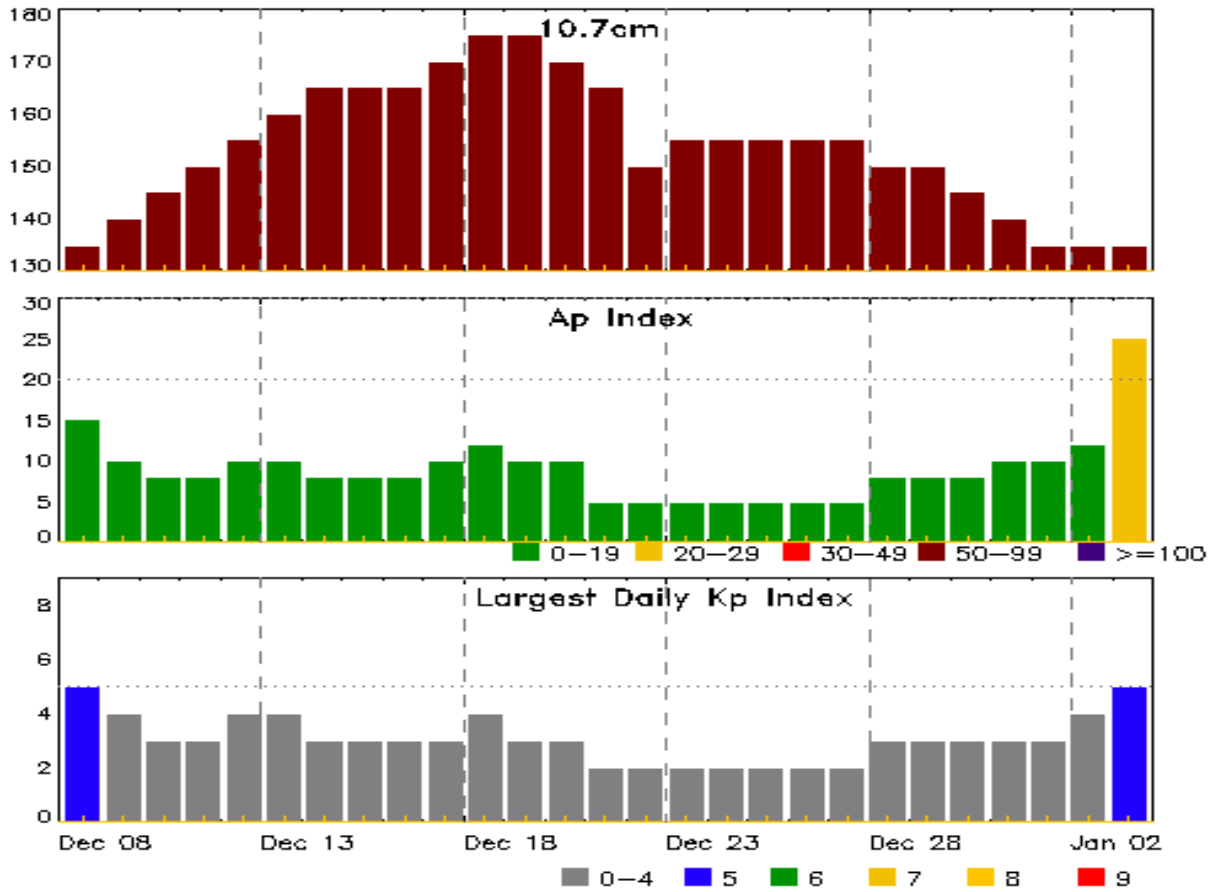


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
01 Dec 0727	SUMMARY: 10cm Radio Burst	01/0630 - 0636
01 Dec 2157	WARNING: Geomagnetic K = 4	01/2155 - 02/0700
01 Dec 2158	ALERT: Geomagnetic K = 4	01/2156
04 Dec 1624	WARNING: Geomagnetic K = 4	04/1625 - 1900
04 Dec 1825	ALERT: X-ray Flux exceeded M5	04/1821
04 Dec 1902	SUMMARY: X-ray Event exceeded M5	04/1805 - 1856
04 Dec 2106	WARNING: Geomagnetic K = 4	04/2130 - 05/1300
04 Dec 2320	ALERT: Geomagnetic K = 4	04/2319
05 Dec 0639	ALERT: Type II Radio Emission	05/0601
05 Dec 0640	ALERT: Type IV Radio Emission	05/0623
06 Dec 1020	WARNING: Geomagnetic K = 4	06/1020 - 1900
06 Dec 1819	EXTENDED WARNING: Geomagnetic K = 4	06/1020 - 07/1300
06 Dec 2007	ALERT: Geomagnetic K = 4	06/2007
07 Dec 0104	WARNING: Geomagnetic K = 5	07/0102 - 1000
07 Dec 0125	ALERT: Geomagnetic K = 5	07/0124
07 Dec 1148	EXTENDED WARNING: Geomagnetic K = 4	06/1020 - 08/1900
07 Dec 1343	WARNING: Geomagnetic K = 5	07/1344 - 2200
07 Dec 1406	ALERT: Geomagnetic K = 5	07/0206
07 Dec 1407	CANCELLATION: Geomagnetic K = 5	
07 Dec 1408	ALERT: Geomagnetic K = 5	07/1406
07 Dec 1431	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/0231
07 Dec 2110	EXTENDED WARNING: Geomagnetic K = 5	07/1344 - 08/0400
07 Dec 2110	WATCH: Geomagnetic Storm Category G1 predicted	



Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
08 Dec	135	15	5	22 Dec	150	5	2
09	140	10	4	23	155	5	2
10	145	8	3	24	155	5	2
11	150	8	3	25	155	5	2
12	155	10	4	26	155	5	2
13	160	10	4	27	155	5	2
14	165	8	3	28	150	8	3
15	165	8	3	29	150	8	3
16	165	8	3	30	145	8	3
17	170	10	3	31	140	10	3
18	175	12	4	01 Jan	135	10	3
19	175	10	3	02	135	12	4
20	170	10	3	03	135	25	5
21	165	5	2				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
01 Dec	0626	0641	0659	M1.8	0.023	1N	S21E17	2222				
04 Dec	0800	0810	0821	M1.3	0.011	1N	S24W27	2222				
04 Dec	1805	1825	1856	M6.1	0.120			2222				
04 Dec	1938	1941	1944	M1.3	0.003			2222				
05 Dec	1133	1225	1247	M1.5	0.031			2222				

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location	Rgn #
	Begin	Max	End				
01 Dec	0008	0033	0058	C4.2	SF	S15W66	2216
01 Dec	0043	0047	0058		SF	S15W66	2216
01 Dec	0511	0518	0522	C1.8	SF	S16W25	2217
01 Dec	0626	0641	0659	M1.8	1N	S21E17	2222
01 Dec	0702	0703	0706		SF	S17W26	2217
01 Dec	0832	0836	0839	C1.2	SF	S16W69	2216
01 Dec	2222	2223	2254		SF	N16W19	2218
02 Dec	0014	0018	0021		SF	S21E09	2222
02 Dec	0022	0026	0030		SF	S21E09	2222
02 Dec	0119	0121	0122		SF	S22E08	2222
02 Dec	0201	0236	0300	C1.5			2222
02 Dec	0351	0429	0451	C2.2			2222
02 Dec	0407	0407	0412		SF	S22E07	2222
02 Dec	0517	0546	0556	C2.1	SF	S24E02	2222
02 Dec	0758	0805	0810	C5.2	SN	S16W40	2217
02 Dec	B1216	U1223	1300		SF	S20E02	2222
02 Dec	B1310	U1310	A1321		SF	S20E02	2222
02 Dec	1334	1352	1358	C4.1			2223
02 Dec	1539	1555	1619	C6.5			2222
02 Dec	1718	1735	1750	C3.9			2223
02 Dec	2030	2034	2037	C2.4			2222
02 Dec	2113	2130	2153	C2.7			2220
02 Dec	2225	2230	2248	C3.0			2222
02 Dec	B2234	2236	2332		SF	S20W07	2222
02 Dec	2313	2314	2322		SF	S20W41	2217
02 Dec	2318	2322	2341		SF	S18W35	2226



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical	
	Begin	Max	End			Location Lat CMD	Rgn #
03 Dec	0058	0102	0126	C2.5	SF	S20W06	2222
03 Dec	0230	0234	0237	C2.4	SF	S16W54	2217
03 Dec	0246	0249	0258		SF	S20W08	2222
03 Dec	0324	0324	0327		SF	S19W35	2226
03 Dec	0332	0341	0349		SF	S21W10	2222
03 Dec	0412	0412	0417		SF	S18W36	2226
03 Dec	0513	0515	0517		SF	S21W11	2222
03 Dec	0522	0522	0527		SF	S21W11	2222
03 Dec	0605	0608	0611	C1.4	SF	S19W38	2226
03 Dec	0648	0648	0652		SF	S19W38	2226
03 Dec	0708	0711	0714		SF	S19W38	2226
03 Dec	0716	0718	0722		SF	S20W39	2226
03 Dec	0811	0818	0821	C1.5	SF	S22W10	2222
03 Dec	0851	0852	0856		SF	S21W12	2222
03 Dec	0910	0934	0959	C3.1	SF	S21W12	2222
03 Dec	1305	1310	1315	C2.7			2222
03 Dec	1322	1326	1331	C3.8			2222
04 Dec	0122	0126	0134		SF	S20W21	2222
04 Dec	0245	0249	0330		SF	S21W21	2222
04 Dec	0702	0702	0706		SF	S25W35	2224
04 Dec	0736	0803	0932	M1.3	1N	S24W27	2222
04 Dec	B0831	U0831	A0933	C5.4	2F	S25W27	2222
04 Dec	1132	1132	1138	C1.4	SF	S23W22	2222
04 Dec	1309	1315	1323	C1.4	SF	S23W52	2226
04 Dec	1632	1650	1658	C1.6			2222
04 Dec	1805	1825	1856	M6.1			2222
04 Dec	1938	1941	1944	M1.3			2222
04 Dec	2208	2222	2233		SF	S21W33	2222
04 Dec	2237	2240	2246		SF	S21W33	2222
04 Dec	2345	2346	2353		SF	S20W35	2222
05 Dec	0019	0024	0031	C1.1	SF	S20W33	2222
05 Dec	0052	0058	0107		SF	S20W35	2222
05 Dec	0350	0350	0353		SF	S13E08	2225
05 Dec	0528	0537	0542	C2.1	1F	S20W35	2222
05 Dec	0556	0559	0613		SF	S20W35	2222
05 Dec	0557	0607	0617	C1.8	SF	S21W69	2226
05 Dec	0709	0715	0722	C1.3	SF	S20W38	2222
05 Dec	0830	0838	0907	C1.0	SF	S20W36	2222



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
05 Dec	0905	0908	0909		SF	S17W66		2226
05 Dec	1017	1026	1035	C1.6				2222
05 Dec	1133	1225	1247	M1.5				2222
05 Dec	1928	1931	1934	C1.0	SF	S21W41		2222
05 Dec	2256	2348	0000	C2.1				2222
06 Dec	0146	0156	0208	C2.8	SF	S21W48		2222
06 Dec	0218	0218	0220		SF	S21W48		2222
06 Dec	0434	0513	0556	C1.6				2222
06 Dec	0454	0458	0509		SF	S20W53		2222
06 Dec	0511	0514	0515		SF	S20W53		2222
06 Dec	0604	0605	0606	C1.6				2222
06 Dec	0710	0711	0713		SF	S20W54		2222
06 Dec	0726	0727	0730		SF	S23W53		2222
06 Dec	0740	0741	0803	C1.5	SF	S21W57		2222
06 Dec	1010	1012	1016		SF	S20W56		2222
06 Dec	B1034	U1054	A1057		SF	S24W53		2222
06 Dec	B1102	U1104	A1109		SF	S24W56		2222
06 Dec	B1122	U1136	A1255	C4.4	SF	S24W53		2222
06 Dec	1332	1352	1357	C3.7	1N	S25W51		2222
06 Dec	1730	1734	1737	C1.8				2222
06 Dec	2234	2238	2242	C1.0				2222
07 Dec	0010	0014	0020	C1.2				2222
07 Dec	0130	0138	0146	C2.7	SF	S23W60		2222
07 Dec	0230	0230	0233		SF	S05E27		2227
07 Dec	0433	0434	0436		SF	S22W68		2222
07 Dec	0914	0919	0924	C1.4				2226
07 Dec	1012	1012	1019		SF	S04E22		2231
07 Dec	1044	1044	1047	C1.0	SF	S04E21		2231
07 Dec	1107	1114	1117	C1.1				2231
07 Dec	1654	1657	1703	C1.2				2222



Region Summary

Date	Location		Sunspot Characteristics					Flares									
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
									C	M	X	S	1	2	3	4	
Region 2216																	
18 Nov	S13E97	164	plage									2					
19 Nov	S13E77	169	plage														
20 Nov	S13E68	164	360	6	Dko	3	B	1									
21 Nov	S14E54	165	640	10	Dkc	7	BD	3				2					
22 Nov	S13E41	165	630	9	Dkc	9	BG	2				1					
23 Nov	S13E28	165	630	8	Dkc	12	BGD	1				1					
24 Nov	S14E13	165	720	10	Dkc	23	BG	1				5					
25 Nov	S13E01	164	420	8	Dkc	26	BG					1					
26 Nov	S14W10	162	280	8	Dki	23	B										
27 Nov	S13W25	165	200	9	Cai	20	B	1				1					
28 Nov	S13W40	167	200	6	Dao	10	B										
29 Nov	S13W54	167	140	5	Dao	8	B										
30 Nov	S14W65	165	160	7	Dao	8	B	1									
01 Dec	S14W76	163	200	8	Dao	6	B	2				3					
02 Dec	S14W90	163	90	5	Hsx	1	A										
									14	0	0	14	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 164

Region 2217

22 Nov	S20E80	127	plage									1					
23 Nov	S19E68	125	180	5	Cao	3	B	6									
24 Nov	S19E53	125	260	8	Cko	6	B	4				4	1				
25 Nov	S19E41	124	380	11	Ekc	10	BG	1				10					
26 Nov	S20E29	123	120	12	Eai	26	BG	1				2					
27 Nov	S20E17	123	130	14	Eai	15	BG										
28 Nov	S20E01	126	70	4	Cao	5	B										
29 Nov	S19W12	125	70	3	Cao	3	B										
30 Nov	S18W25	125	80	8	Dao	9	BG					1					
01 Dec	S17W38	125	90	7	Dao	11	BG	1				2					
02 Dec	S16W51	124	120	8	Dai	9	BG	1				2					
03 Dec	S17W63	124	150	9	Dai	9	BG	1				1					
04 Dec	S15W82	130	30	9	Dao	3	B										
									16	0	0	22	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 126



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 2218																		
24 Nov	N14E64	114	120	8	Cso	2	B											
25 Nov	N15E53	112	130	9	Cso	2	B											
26 Nov	N15E38	114	140	9	Cso	2	B											
27 Nov	N16E28	112	140	3	Hsx	1	A											
28 Nov	N16E15	112	140	3	Hsx	1	A											
29 Nov	N16E02	111	130	3	Hsx	1	A											
30 Nov	N16W11	111	140	3	Hsx	1	A											
01 Dec	N16W22	109	170	3	Hsx	1	A						1					
02 Dec	N18W36	109	160	3	Hsx	1	A											
03 Dec	N17W51	111	130	3	Hsx	1	A											
04 Dec	N17W63	111	140	2	Hsx	1	A											
05 Dec	N17W77	111	110	2	Hsx	1	A											
06 Dec	N17W90	111	90	2	Hsx	1	A											
								0	0	0	1	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 111

Region 2219																		
24 Nov	N05E20	158	10	3	Bxo	2	B						1					
25 Nov	N05E07	158	30	5	Dri	8	B							4				
26 Nov	N05W08	160	30	6	Dri	23	B	1						4				
27 Nov	N04W21	161	200	9	Dai	16	BG							4				
28 Nov	N04W34	161	250	11	Ekc	16	BG	1						5				
29 Nov	N05W47	160	260	11	Ekc	16	BGD	5						7				
30 Nov	N04W60	160	300	10	Dko	9	BG							1				
01 Dec	N03W73	160	130	8	Cao	5	BG											
02 Dec	N03W90	163	120	2	Hsx	2	A											
								7	0	0	26	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 158



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2220																							
24 Nov	S16E28	150	10	1	Axx	2	A																
25 Nov	S17E14	151	10	3	Bxo	3	B						1										
26 Nov	S16E01	151	10	4	Bxo	6	B																
27 Nov	S16W13	153	10	2	Axx	2	A																
28 Nov	S16W27	154	10	2	Bxo	2	B																
29 Nov	S16W41	154	0	1	Axx	1	A						1										
30 Nov	S16W55	155	plage																				
01 Dec	S16W69	156	plage																				
02 Dec	S16W83	157	plage									1											
												1	0	0	2	0	0	0	0	0			

Crossed West Limb.
 Absolute heliographic longitude: 151

Region 2221																							
26 Nov	N04E70	81	30	4	Dro	4	B																
27 Nov	N04E56	84	160	8	Dai	10	B																
28 Nov	N04E43	84	200	11	Eac	16	BG						1										
29 Nov	N04E29	84	200	11	Eac	18	BG	1					3										
30 Nov	N04E16	84	160	9	Dsi	14	BG	2					2										
01 Dec	N03E05	82	70	12	Cao	15	B																
02 Dec	N06W11	84	70	9	Cao	8	B																
03 Dec	N05W26	86	30	3	Cro	9	B																
04 Dec	N05W40	88	20	5	Cro	6	B																
05 Dec	N05W54	88	plage																				
06 Dec	N05W67	88	plage																				
07 Dec	N05W82	90	plage																				
												3	0	0	6	0	0	0	0	0			

Still on Disk.
 Absolute heliographic longitude: 82



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares													
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical								
									C	M	X	S	1	2	3	4				
Region 2222																				
26 Nov	S20E70		82	30	1	Hrx	1	A	3			2								
27 Nov	S20E59		81	120	10	Dai	10	BG	7			26	2							
28 Nov	S20E44		83	330	11	Ehc	17	BG	4			16								
29 Nov	S21E30		83	540	13	Ekc	26	BG	5			10	1							
30 Nov	S20E17		83	680	13	Ekc	30	BG	3			4								
01 Dec	S21E03		84	650	14	Eki	20	BG		1		1								
02 Dec	S19W10		83	620	14	Eki	27	BG	6			8								
03 Dec	S20W22		82	570	14	Ekc	22	BG	5			8								
04 Dec	S19W37		85	770	14	Ekc	32	BG	3	3		6	1	1						
05 Dec	S20W51		85	560	14	Eki	23	BG	7	1		6	1							
06 Dec	S20W64		85	650	13	Cko	6	BG	8			11	1							
07 Dec	S19W80		88	640	9	Hkx	4	A	3			2								
									54	5	0	99	7	1	0	0				

Still on Disk.

Absolute heliographic longitude: 84

Region 2223

27 Nov	N17W11		151	10	3	Bxo	1	B										
28 Nov	N17W25		152	10	3	Bxo	5	B										
29 Nov	N17W40		153	10	6	Bxo	3	B										
30 Nov	N16W52		152	10	1	Axx	1	A										
01 Dec	N15W66		153	10	3	Axx	2	A										
02 Dec	N15W80		154	plage								2						
									2	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 151



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
									C	M	X	S	1	2	3	4		
Region 2224																		
28 Nov	S24E29	98	10		3	Bxo	4	B										
29 Nov	S24E15	98	plage											1				
30 Nov	S24E01	99	plage															
01 Dec	S24W13	100	plage															
02 Dec	S24W27	101	plage															
03 Dec	S24W41	102	plage															
04 Dec	S24W55	103	plage										1					
05 Dec	S24W69	103	plage															
06 Dec	S24W82	103	plage															
									0	0	0	1	1	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 99

Region 2225																		
30 Nov	S17E56	44	10		1	Axx	1	A										
01 Dec	S17E43	44	10		5	Bxo	4	B										
02 Dec	S17E30	43	10		1	Bxo	3	B										
03 Dec	S17E17	43	10		1	Bxo	3	B										
04 Dec	S15E05	43	10		8	Bxo	7	B										
05 Dec	S15W08	42	10		8	Bxo	4	B					1					
06 Dec	S15W21	42	plage															
07 Dec	S15W34	42	plage															
									0	0	0	1	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 43

Region 2226																		
01 Dec	S19W22	109	50		6	Cao	6	B										
02 Dec	S19W36	109	40		6	Cao	4	B					1					
03 Dec	S18W48	108	90		7	Cai	13	B	1				6					
04 Dec	S19W61	109	30		7	Cro	4	B	1				1					
05 Dec	S19W75	109	10		7	Bxo	5	B	1				2					
06 Dec	S19W88	109	20		1	Hax	1	A										
									3	0	0	10	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 109



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares																
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2227																							
02 Dec	S03E71		2	60	5	Hsx	1	A															
03 Dec	S05E59		1	110	1	Hsx	1	A															
04 Dec	S04E45		3	80	1	Hsx	1	A															
05 Dec	S03E32		2	120	2	Hsx	1	A															
06 Dec	S04E18		3	100	3	Hsx	1	A															
07 Dec	S04E07		1	100	4	Hax	2	A					1										
									0	0	0		1	0	0	0	0	0					
Still on Disk. Absolute heliographic longitude: 1																							
Region 2228																							
04 Dec	N09W16		64	10	2	Bxo	3	B															
05 Dec	N08W31		65	10	3	Bxo	3	B															
06 Dec	N08W44		65	plage																			
07 Dec	N08W58		66	plage																			
									0	0	0		0	0	0	0	0	0					
Still on Disk. Absolute heliographic longitude: 64																							
Region 2229																							
06 Dec	S23E22		359	10	3	Bxo	3	B															
07 Dec	S23E09		359	plage																			
									0	0	0		0	0	0	0	0	0					
Still on Disk. Absolute heliographic longitude: 359																							
Region 2230																							
06 Dec	S14E57		324	10	2	Axx	1	A															
07 Dec	S14E43		325	plage																			
									0	0	0		0	0	0	0	0	0					
Still on Disk. Absolute heliographic longitude: 325																							
Region 2231																							
07 Dec	S05E13		355	40	5	Dao	8	B	2				2										
									2	0	0		2	0	0	0	0	0					

Still on Disk.
Absolute heliographic longitude: 355



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares									
	Lat CMD	Lon	Heli 10 ⁻⁶	Area hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
									C	M	X	S	1	2	3	4
Region 2232																
07 Dec	N10E76	292	80	5	Dao	4	B	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 292

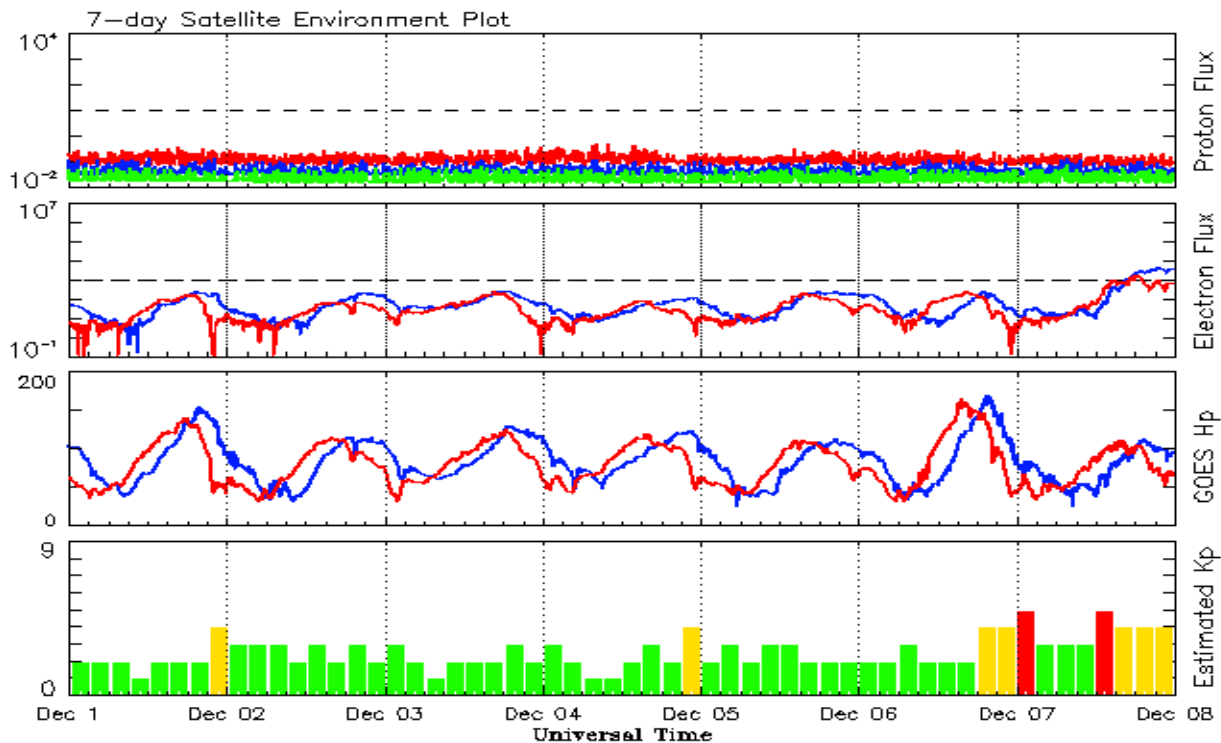


Recent Solar Indices (preliminary)
Observed monthly mean values

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2012									
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
2013									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71	85.7	57.6	111.2	117.1	9	7.4
April	112.8	72.4	0.64	86.7	57.9	125.0	116.6	5	7.2
May	125.5	78.7	0.63	90.5	59.9	131.3	118.1	10	7.0
June	80.1	52.5	0.66	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
August	90.2	66.0	0.73	103.7	68.9	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.0	102.7	132.3	5	7.8
October	127.1	85.6	0.67	114.3	74.9	132.3	134.7	7	7.8
November	125.7	77.6	0.62	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	75.9	147.7	135.9	5	7.5
2014									
January	125.9	81.8	0.65	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	78.4	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	80.8	149.9	140.8	6	7.2
April	130.5	84.7	0.65	124.8	81.9	144.3	143.5	9	7.5
May	116.8	75.2	0.64	122.3	80.5	130.0	144.7	7	7.9
June	107.7	71.0	0.66			122.2		7	
July	113.6	72.5	0.64			137.3		5	
August	106.2	74.7	0.70			124.7		9	
September	127.4	87.6	0.69			146.1		11	
October	92.0	60.6	0.66			153.7		10	
November	101.8	70.1	0.69			155.3		10	

Note: Values are final except for the most recent 6 months which are considered preliminary.
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 01 December 2014*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

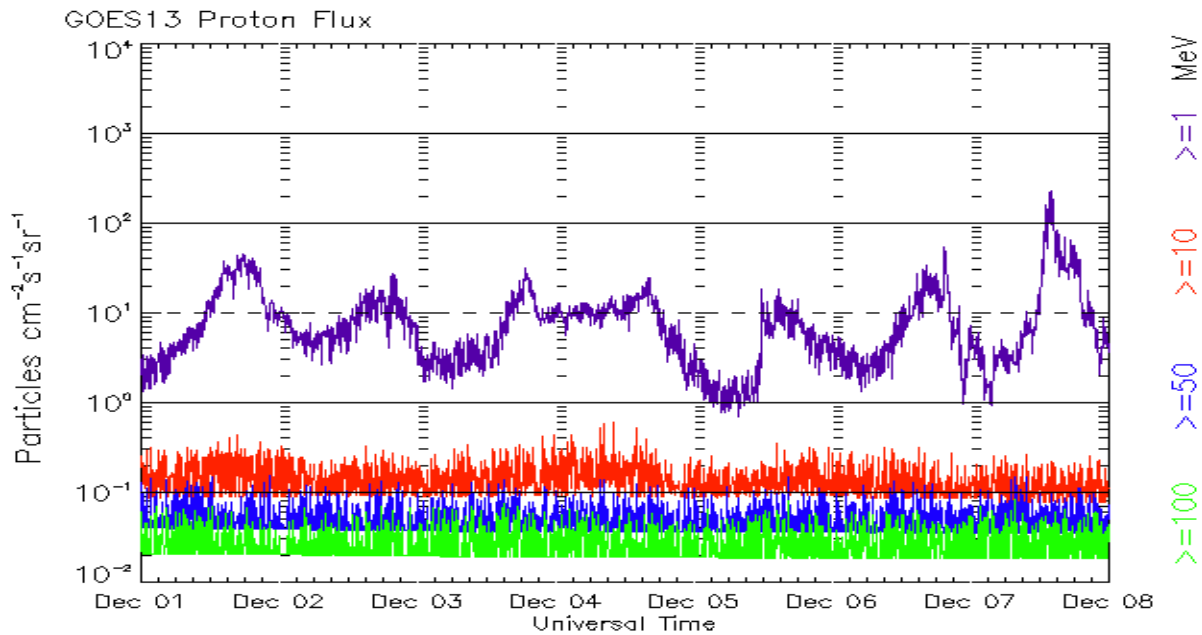
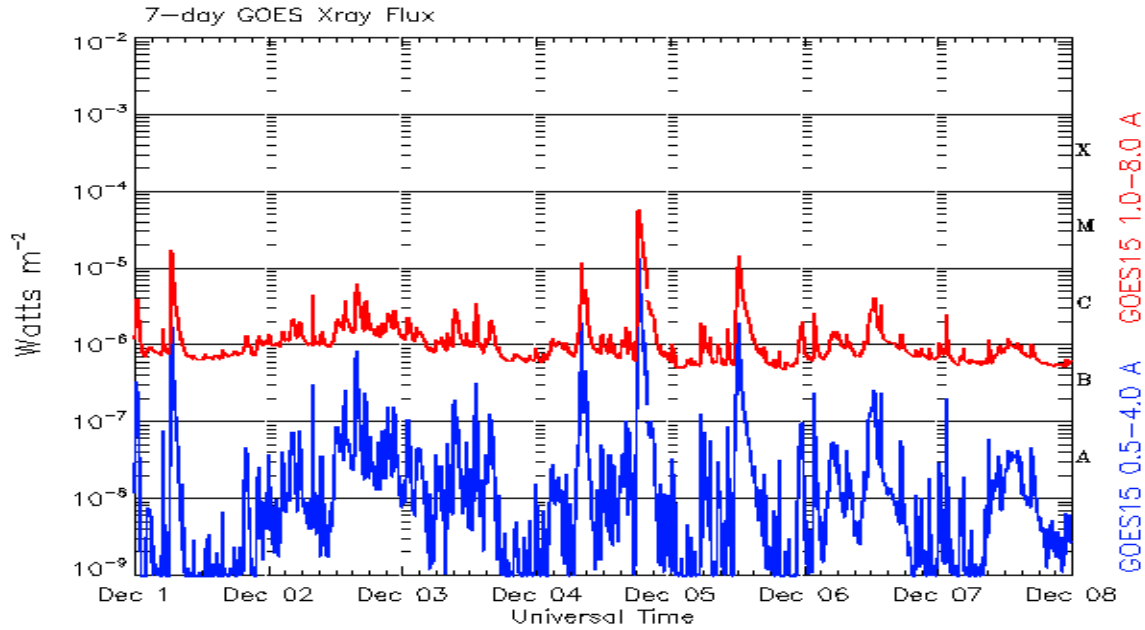
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 01 December 2014

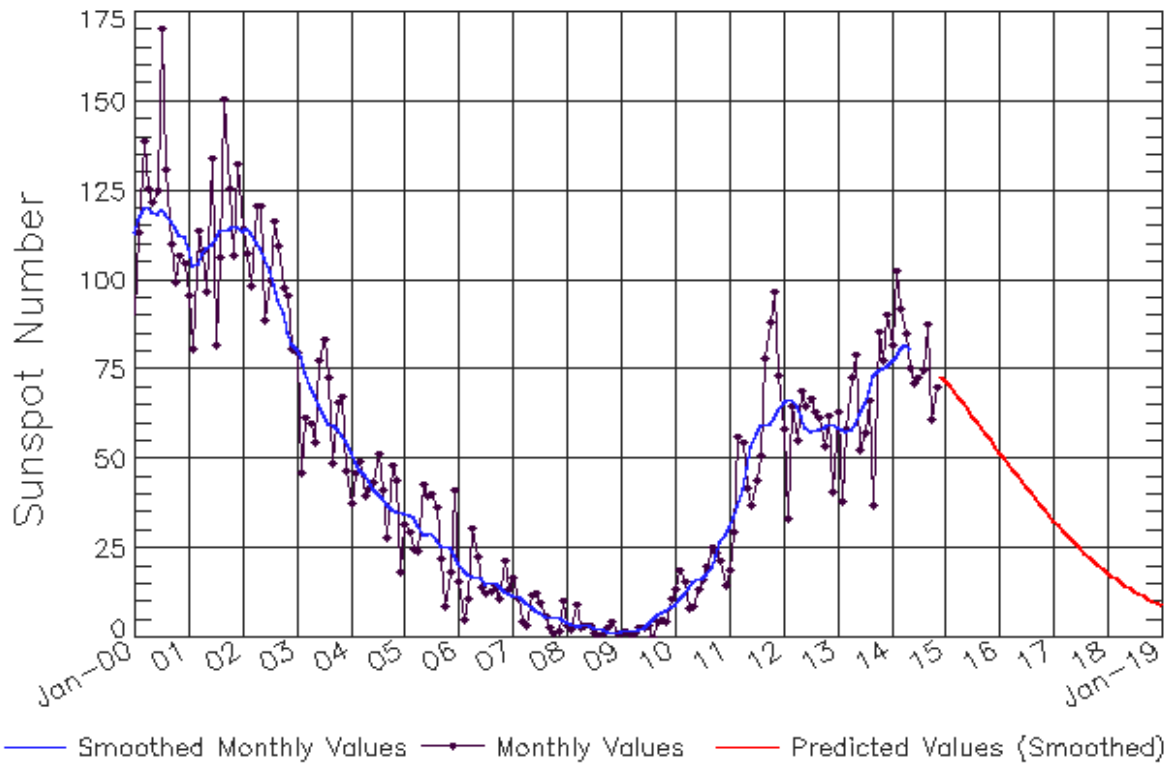
The x-ray plots contains five-minute averages x-ray flux ($Watt/m^2$) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/ cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1 , >10 , >30 , and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



ISES Solar Cycle Sunspot Number Progression

Observed data through Nov 2014



Updated 2014 Dec 8

NOAA/SWPC Boulder, CO USA

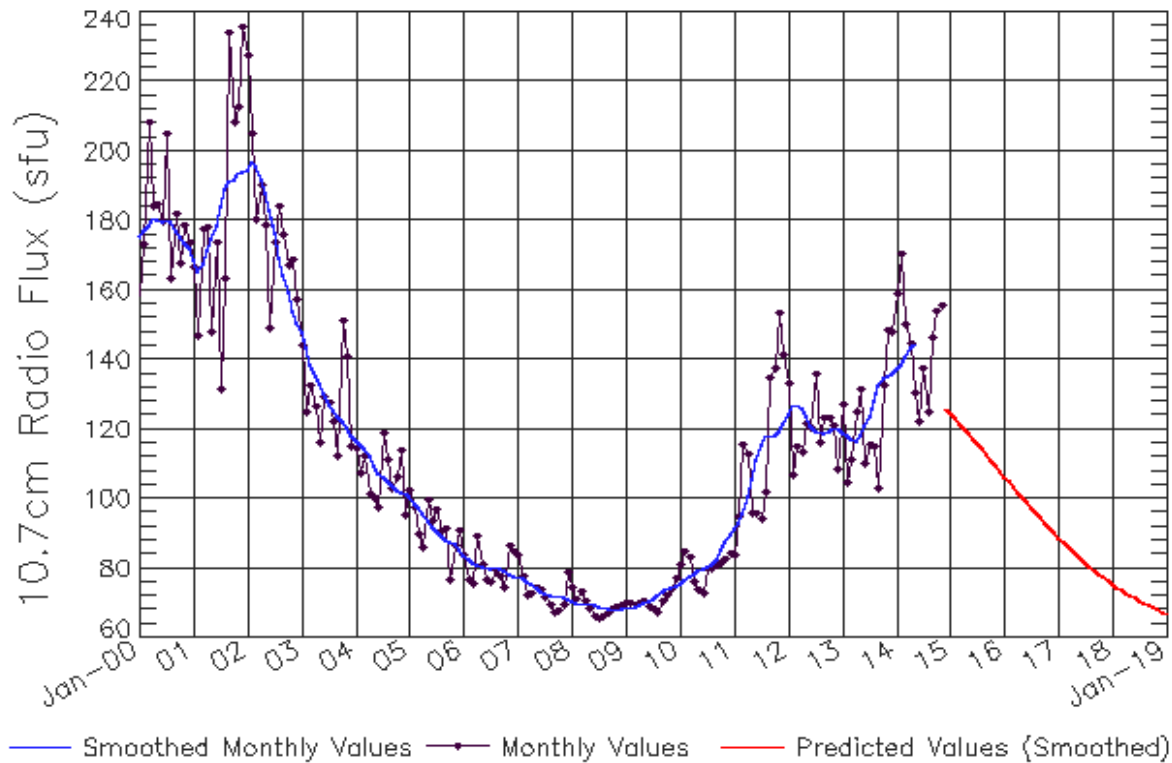
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (**)	11 (**)	12 (**)	14 (**)	16 (**)	16 (**)	17 (**)	17 (**)	20 (**)	23 (**)	27 (**)	29 (**)
2011	31 (**)	33 (**)	37 (**)	42 (**)	48 (**)	53 (**)	57 (**)	59 (**)	60 (**)	60 (**)	61 (**)	63 (**)
2012	66 (**)	67 (**)	67 (**)	65 (**)	62 (**)	59 (**)	58 (**)	58 (**)	58 (**)	59 (**)	60 (**)	60 (**)
2013	59 (**)	58 (**)	58 (**)	58 (**)	60 (**)	63 (**)	66 (**)	69 (**)	73 (**)	75 (**)	75 (**)	76 (**)
2014	77 (**)	78 (**)	81 (**)	82 (**)	81 (**)	80 (1)	78 (2)	77 (3)	74 (5)	73 (5)	72 (6)	71 (7)
2015	70 (7)	69 (8)	67 (9)	66 (9)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Nov 2014



Updated 2014 Dec 8

NOAA/SWPC Boulder, CO USA

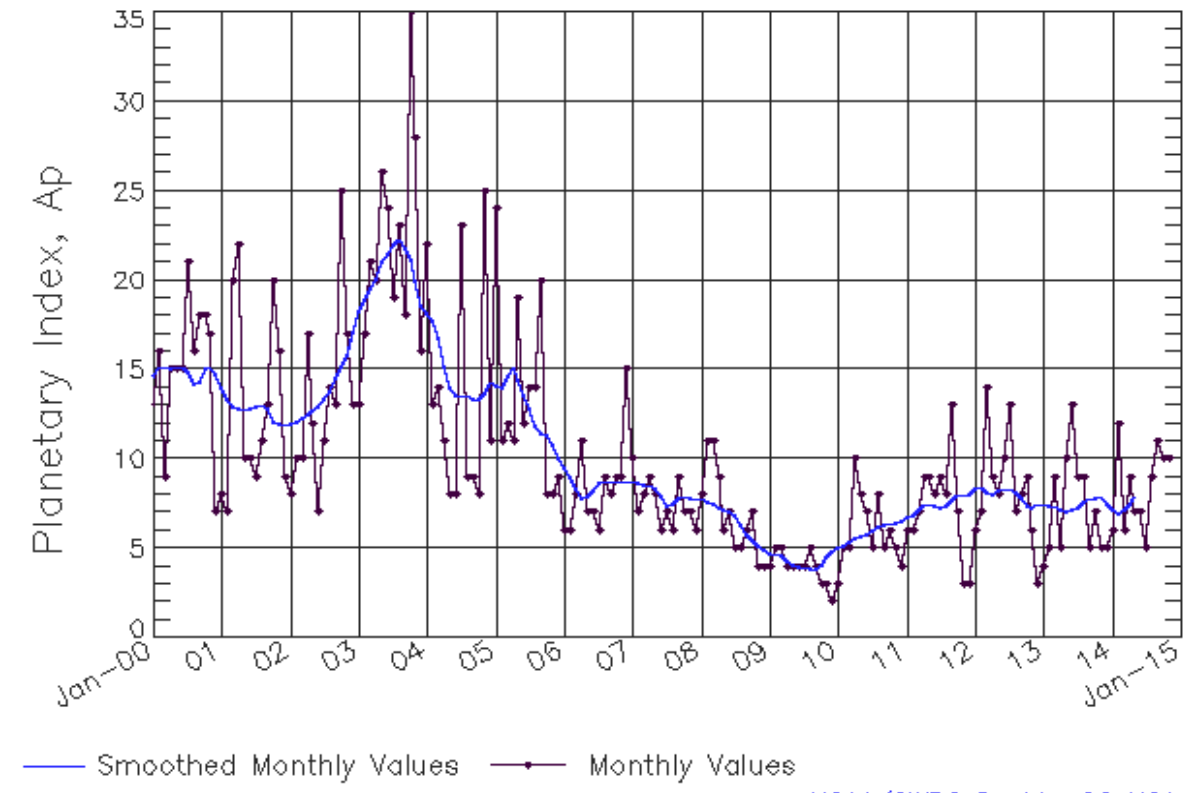
Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (***)	77 (***)	78 (***)	78 (***)	79 (***)	80 (***)	80 (***)	81 (***)	82 (***)	85 (***)	88 (***)	90 (***)
2011	91 (***)	93 (***)	96 (***)	100 (***)	106 (***)	111 (***)	115 (***)	118 (***)	118 (***)	118 (***)	120 (***)	122 (***)
2012	124 (***)	127 (***)	127 (***)	126 (***)	124 (***)	121 (***)	120 (***)	119 (***)	119 (***)	119 (***)	120 (***)	120 (***)
2013	119 (***)	118 (***)	117 (***)	117 (***)	118 (***)	121 (***)	124 (***)	128 (***)	132 (***)	135 (***)	135 (***)	136 (***)
2014	137 (***)	139 (***)	141 (***)	144 (***)	145 (***)	144 (1)	142 (1)	138 (2)	135 (3)	133 (4)	132 (4)	131 (5)
2015	130 (6)	129 (7)	127 (8)	124 (8)	120 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



ISES Solar Cycle Ap Progression

Observed data through Nov 2014



Updated 2014 Dec 8

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

